



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-5307; Directorate Identifier 2016-NE-08-AD]

RIN 2120-AA64

Airworthiness Directives; General Electric Company Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for all General Electric Company (GE) GE90-76B, GE90-77B, GE90-85B, GE90-90B, and GE90-94B turbofan engines with high-pressure compressor (HPC) stage 8-10 spool, part numbers (P/Ns) 1694M80G04, 1844M90G01, or 1844M90G02, installed. This proposed AD was prompted by reports of cracks found on the seal teeth of the HPC stage 8-10 spool. This proposed AD would require eddy current inspections (ECIs) or fluorescent penetrant inspections (FPIs) of the HPC stage 8-10 spool seal teeth and removing from service those parts that fail inspection. We are proposing this AD to prevent failure of the HPC stage 8-10 spool, uncontained rotor release, damage to the engine, and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact General Electric Company, GE-Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215, phone: 513-552-3272; email: aviation.fleetsupport@ge.com. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-5307; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: John Frost, Aerospace Engineer, Engine Certification Office, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: john.frost@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this NPRM. Send your comments to an address listed under the ADDRESSES section.

Include “Docket No. FAA-2016-5307; Directorate Identifier 2016-NE-08-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this NPRM.

Discussion

We received reports of multiple cracks found on the seal teeth of HPC stage 8-10 spools during shop visits. The cracks initiated because of degraded surface properties caused by an alloy depletion zone (ADZ). The ADZ developed over time due to higher than predicted temperatures and reaction with the seal teeth bond coat. GE is developing a modification to address the unsafe condition. This condition, if not corrected, could result in failure of the HPC stage 8-10 spool, uncontained rotor release, damage to the engine, and damage to the airplane.

Related Service Information

We reviewed GE Service Bulletins SB 72-1141, Revision 0, dated December 2, 2015 and SB 72-1142, Revision 0, dated November 30, 2015. The service information describes procedures for inspecting the HPC stage 8-10 spool seal teeth.

FAA’s Determination

We are proposing this NPRM because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This NPRM would require accomplishing an ECI or FPI of the seal teeth of the HPC stage 8-10 spool and removing from service those parts that fail inspection.

Costs of Compliance

We estimate that this proposed AD affects 54 engines installed on airplanes of U.S. registry. We also estimate that it will take about 1 hour per engine to comply with this AD. The average labor rate is \$85 per hour. We estimate 14 parts will fail inspection at a pro-rated cost of \$400,000 per part. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$5,604,590.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States,

or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

General Electric Company: Docket No. FAA-2016-5307; Directorate Identifier 2016-NE-08-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to General Electric Company (GE) GE90-76B, GE90-77B, GE90-85B, GE90-90B, and GE90-94B turbofan engines with a high-pressure compressor (HPC) stage 8-10 spool, part numbers (P/Ns) 1694M80G04, 1844M90G01, or 1844M90G02, installed.

(d) Unsafe Condition

This AD was prompted by reports of cracks found on the seal teeth of the HPC stage 8-10 spool. We are issuing this AD to prevent failure of the HPC stage 8-10 spool, uncontained rotor release, damage to the engine, and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) Perform an eddy current inspection (ECI) or fluorescent penetrant inspection (FPI) of the seal teeth of the HPC stage 8-10 spool as follows:

(i) For HPC stage 8-10 spools with fewer than 11,000 cycles since new (CSN) on the effective day of this AD, inspect at the next shop visit after reaching 6,000 CSN, not to exceed 12,500 CSN.

(ii) For HPC stage 8-10 spools with 11,000 CSN or more on the effective day of this AD, inspect within the next 1,500 cycles in service.

(iii) Thereafter, inspect the seal teeth of the HPC stage 8-10 spool at each shop visit.

(2) Remove from service any HPC stage 8-10 spool that fails the ECI or FPI required by paragraph (e)(1) of this AD and replace with a part eligible for installation.

(f) Definition

For the purpose of this AD, an engine shop visit is the induction of an engine into the shop for maintenance during which the compressor discharge pressure seal face is exposed.

(g) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(h) Related Information

(1) For more information about this AD, contact John Frost, Aerospace Engineer, Engine Certification Office, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7756; fax: 781-238-7199; email: john.frost@faa.gov.

(2) GE Service Bulletins SB 72-1141, Revision 0, dated December 2, 2015 and SB 72-1142, Revision 0, dated November 30, 2015 can be obtained from GE, using the contact information in paragraph (h)(3) of this AD.

(3) For service information identified in this proposed AD, contact General Electric Company, GE-Aviation, Room 285, 1 Neumann Way, Cincinnati, OH 45215, phone: 513-552-3272; email: aviation.fleetsupport@ge.com.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on April 5, 2016.

Colleen M. D'Alessandro,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2016-08111 Filed: 4/8/2016 8:45 am; Publication Date: 4/11/2016]